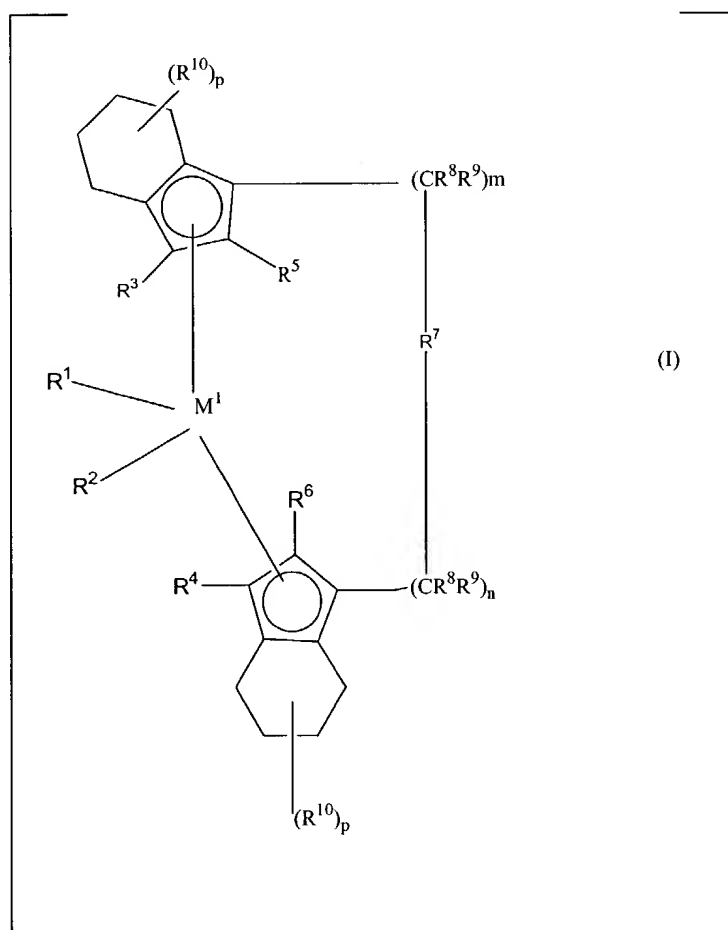
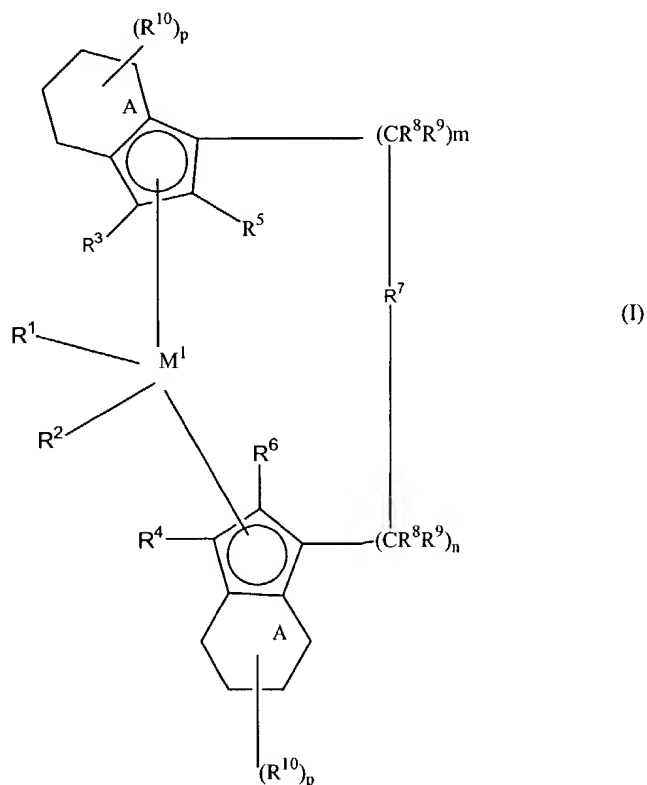


AMENDMENTS TO THE CLAIMS

1. A compound of the formula I [for preparing essentially isotactic olefin polymers]





in which

M^1 is a metal from group IVb, Vb or VIb of the Periodic Table

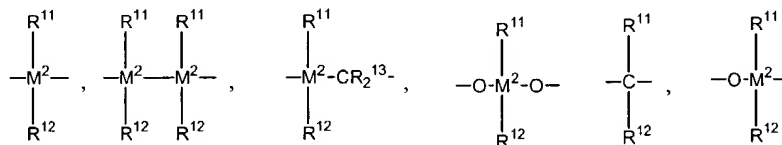
R^1 and R^2 are identical or different and are a hydrogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -alkoxy group, a C_6 - C_{10} -aryl group, a C_6 - C_{10} -aryloxy group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_7 - C_{40} -alkylaryl group, a C_8 - C_{40} -arylalkenyl group or a halogen atom,

R^3 is a hydrogen atom, a halogen atom, a C_2 - C_{10} -alkyl group, a C_1 - C_{10} -alkyl group which is halogenated, a C_6 - C_{10} -aryl group, an $-NR_2^{15}$, $-SR^{15}$, $-OSiR_3^{15}$, $-SiR_3^{15}$ or $-PR_2^{15}$ radical in which R^{15} is a halogen atom, a C_1 - C_{10} -alkyl group or a C_6 - C_{10} -aryl group,

[R³ and] R⁴ is a hydrogen atom, a halogen atom, [a halogen atom,] a C₁-C₁₀-alkyl group, which is optionally halogenated, a C₆-C₁₀-aryl group, an -NR₂¹⁵, -SR¹⁵, -OSiR₃¹⁵, -SiR₃¹⁵ or -PR₂¹⁵ radical in which R¹⁵ is a halogen atom, a C₁-C₁₀-alkyl group or a C₆-C₁₀-aryl group,

R⁵ and R⁶ are identical or different and are as defined for [R³ and] R⁴, with the proviso that R⁵ and R⁶ are not hydrogen,

R⁷ is



=BR¹¹, =AlR¹¹, -Ge-, -Sn-, -O-, -S-, =SO, =SO₂, =NR¹¹, =CO, =PR¹¹ or =P(O)R¹¹,

where

R¹¹, R¹² and R¹³ are identical or different and are a hydrogen atom, a halogen atom, a C₁-C₁₀-alkyl group, a C₁-C₁₀-fluoroalkyl group, a C₆-C₁₀-aryl group, a C₆-C₁₀-fluoroaryl group, a C₁-C₁₀-alkoxy group, a C₂-C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₈-C₄₀-arylalkenyl group or a C₇-C₄₀-alkylaryl group, or a pair of substituents R¹¹ and R¹²-- or R¹¹ and R¹³ in each case with the atoms connecting them, form a ring,

M² is silicon, germanium or tin,

R⁸ and R⁹ are identical or different and are as defined for R¹¹

m and n are identical or different and are zero, 1 or 2, m plus n being zero, 1 or 2,

the radicals R^{10} are identical or different and are as defined

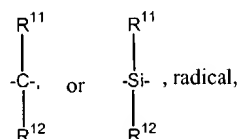
for R^{11} , R^{12} and R^{13} ,

rings A are saturated or aromatic,

p _____ is 8, when rings A are saturated, and

p _____ is 4, when rings A are aromatic.

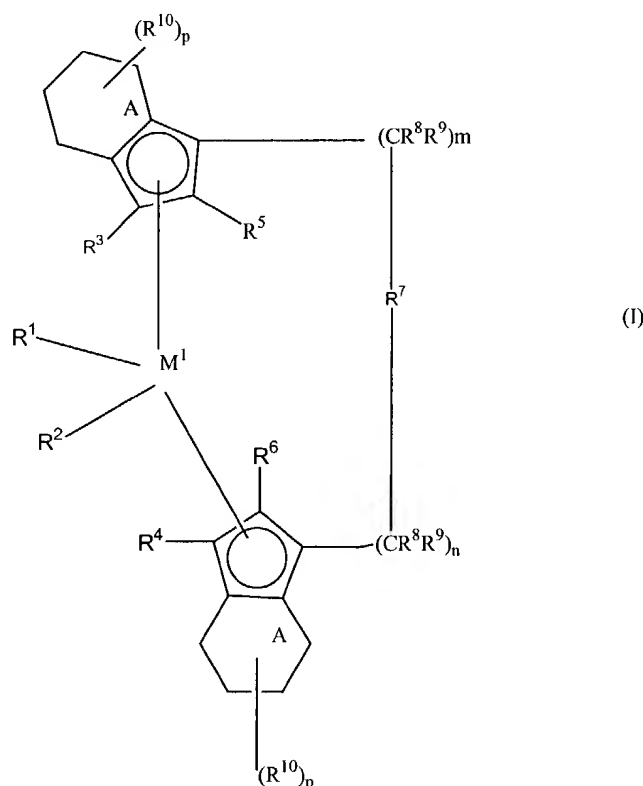
2. A compound of the formula I as claimed in claim 1, wherein, in the formula I, M^1 is Zr or Hf, R^1 and R^2 are identical or different and are methyl or chlorine, R^3 or R^4 are hydrogen, R^5 and R^6 are identical or different and are methyl, ethyl or trifluoromethyl, R^7 is a



n plus m is zero or 1, and R^{10} is hydrogen.

3. A compound of the formula I as claimed in claim 1 wherein the compound is rac-dimethylsilyl(2-methyl-4,5,6,7-tetrahydro-1-indenyl)₂zirconium dichloride, racethylene(2-methyl-4,5,6,7-tetrahydro-1-indenyl)₂zirconium dichloride, rac-dimethylsilyl (2-methyl-4,5,6,7-tetrahydro-1-indenyl)₂dimethylzirconium or racethylene(2-methyl-4,5,6,7-tetrahydro-1-indenyl)₂dimethylzirconium.
4. A compound as claimed in claim 1, wherein M^1 is zirconium, hafnium or titanium.
5. A compound as claimed in claim 1, wherein R^1 and R^2 are identical or different and are a hydrogen atom, a C₁-C₃-alkyl group, a C₁-C₃-alkoxy group, a C₆-C₈-aryl group, a C₆-C₆-aralkoxy group, a C₂-C₄-alkenyl group, a C₇-C₁₀-arylalkyl group, a C₇-C₁₂-alkylaryl group, a C₈-C₁₂-arylalkenyl group or chlorine.

6. A compound as claimed in claim 1, wherein R^3 is a C_4 -alkyl group, C_1 - C_4 -alkyl group which is halogenated, a C_6 - C_8 -aryl group, an $-NR_2^{15}$, $-SR^{15}$, $-OSiR_3^{15}$, $-SiR_3^{15}$ or $-PR_2^{15}$ radical and R^4 is [are identical and different and are] a hydrogen atom, a fluorine, chlorine or bromine atom, a C_1 - C_4 -alkyl group, which may be halogenated, a C_6 - C_8 -aryl group, an $-NR_2^{15}$, $-SR^{15}$, $-OSiR_3^{15}$, $-SiR_3^{15}$ or $-PR_2^{15}$ radical in which R^{15} is a chlorine atom, or a C_1 - C_3 -alkyl group or a C_6 - C_8 -aryl group
7. A compound [as claimed in claim 1,] of the formula (I) for preparing essentially isotactic olefin polymers



in which

M^1 is a metal from group IVb, Vb or VIb of the Periodic Table

R^1 and R^2 are identical or different and are a hydrogen atom, a C_1 - C_{10} -alkyl group, a

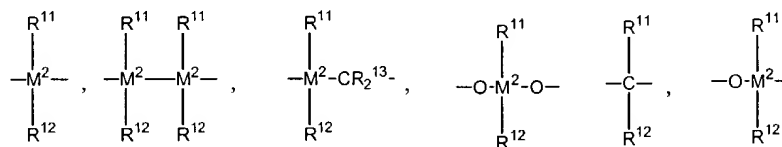
C_1 - C_{10} -alkoxy group, a C_6 - C_{10} -aryl group, a C_6 - C_{10} -aryloxy group, a C_2 -

C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₇-C₄₀-alkylaryl group, a C₈-C₄₀-arylalkenyl group or a halogen atom,

R³ and R⁴ are hydrogen,

R⁵ and R⁶ are identical or different and are a halogen atom, a C₁-C₁₀-alkyl group, which is optionally halogenated, a C₆-C₁₀-aryl group, an -NR₂¹⁵, -SR¹⁵, -OSiR₃¹⁵, -SiR₃¹⁵ or -PR₂¹⁵ radical in which R¹⁵ is a halogen atom, a C₁-C₁₀-alkyl group or a C₆-C₁₀-aryl group

R⁷ is



=BR¹¹, =AIR¹¹, -Ge-, -Sn-, -O-, -S-, =SO, =SO₂, =NR¹¹, =CO, =PR¹¹ or =P(O)R¹¹,

where

R¹¹, R¹² and R¹³ are identical or different and are a hydrogen atom, a halogen atom, a C₁-C₁₀-alkyl group, a C₁-C₁₀-fluoroalkyl group, a C₆-C₁₀-aryl group, a C₆-C₁₀-fluoroaryl group, a C₁-C₁₀-alkoxy group, a C₂-C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₈-C₄₀-arylalkenyl group or a C₇-C₄₀-alkylaryl group, or a pair of substituents R¹¹ and R¹²-- or R¹¹ and R¹³ in each case with the atoms connecting them, form a ring,

M² is silicon, germanium or tin,

R⁸ and R⁹ are identical or different and are as defined for R¹¹

m and n are identical or different and are zero, 1 or 2, m plus n being zero, 1 or 2,

the radicals R¹⁰ are identical or different and are as defined

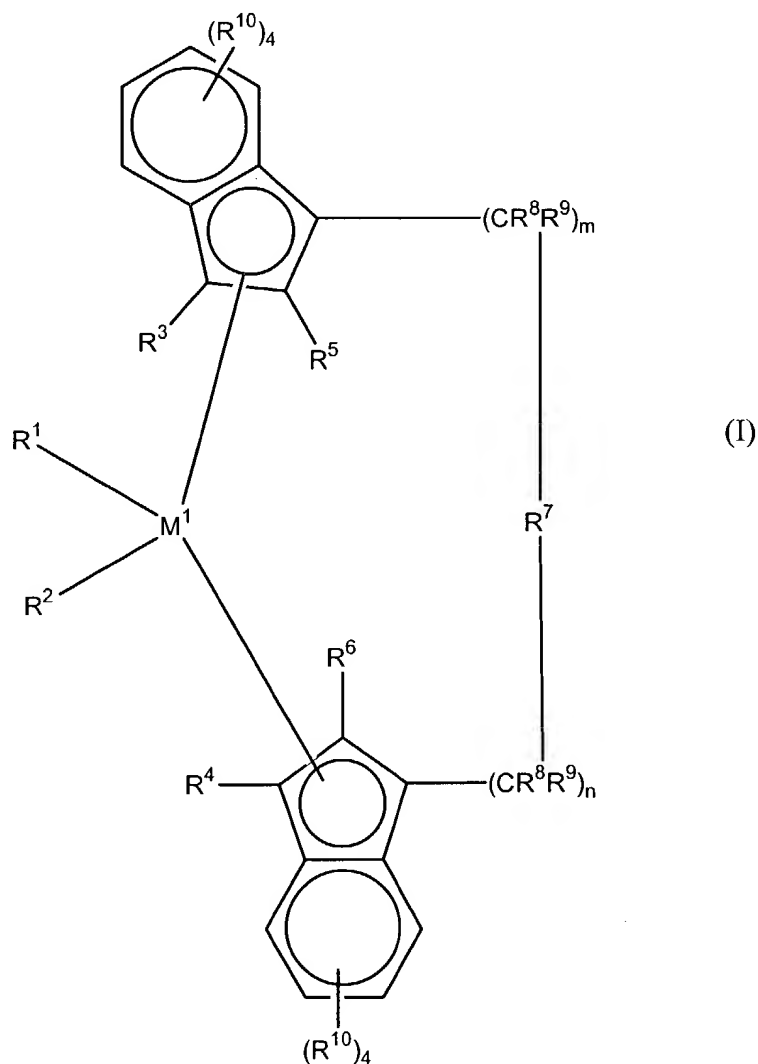
for R¹¹, R¹² and R¹³,

rings A are saturated or aromatic,

p _____ is 8, when rings A are saturated, and

p _____ is 4, when rings A are aromatic.

8. A compound as claimed in claim 1, wherein R⁵ and R⁶ are identical.
9. A compound as claimed in claim 1, wherein R₅ and R₆ are (C₁-C₄)-alkyl, which may be halogenated with methyl.
10. A compound as claimed in claim 1, wherein R¹¹, R¹² and R¹³ are identical or different and are a hydrogen atom, a halogen atom, a C₁-C₄-alkyl group, a CF₃ group, a C₆-C₈-aryl group, a pentafluorophenyl group, a C₁-C₄-alkoxy group, a C₂-C₄-alkenyl group, a C₇-C₁₀-arylalkyl group, a C₈-C₁₂-arylalkenyl group of a C₇-C₁₂-alkylaryl group, or R¹¹ and R¹² or R¹¹ and R¹³, in each case together with the atoms connecting them, form a ring.
11. A compound as claimed in claim 1, wherein M² is silicon or germanium.
12. A compound as claimed in claim 1, wherein R⁷ is =CR¹¹R¹², =SiR¹¹R¹², =GeR¹¹R¹², -O-, -S-, =SO, -PR¹¹ or =P(O)R¹¹.
13. A compound as claimed in claim 1, wherein m and n are identical or different and are zero or 1.
14. A compound as claimed in claim 1, wherein m plus n is zero or 1.
15. A compound as claimed in claim 1, wherein R¹⁰ is hydrogen or C₁-C₄-alkyl groups.
- [16. A compound of the formula I



in which

M^1 is a metal from group IVb, Vb or VIb of the Periodic Table,

R^1 and R^2 are identical or different and are a hydrogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -alkoxy group, a C_6 - C_{10} -aryl group, a C_6 - C_{10} -aryloxy group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_7 - C_{40} -alkylaryl group, a C_8 - C_{40} -arylalkenyl group or a halogen atom,

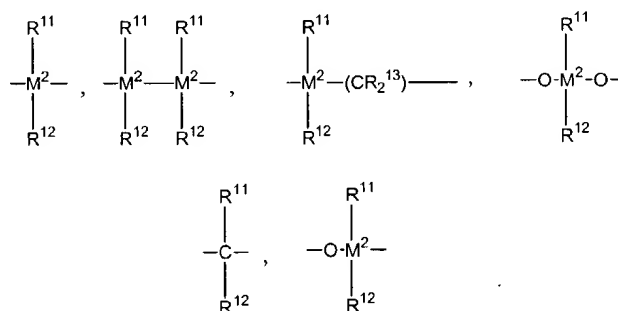
R^3 and R^4 are identical or different and are a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, which is optionally halogenated, a C_6 - C_{10} -aryl group, an $-NR_2^{15}$, $-SR^{15}$,

$-\text{OSiR}_3^{15}$, SiR_3^{15} or PR_2^{15} radical in which R^{15} is a halogen atom, a C_1 - C_{10} -alkyl group or a C_6 - C_{10} -aryl group,

R^5 and R^6 are identical or different and are as defined for R^3 and R^4 , with the proviso that

R^5 and R^6 are not both hydrogen,

R^7 is



$=\text{BR}^{11}$, $=\text{AlR}^{11}$, $-\text{Ge}-$, $-\text{Sn}-$, $-\text{O}-$, $-\text{S}-$, $=\text{SO}$, $=\text{SO}_2$, $=\text{NR}^{11}$, $=\text{CO}$, $=\text{PR}^{11}$ or $=\text{P}(\text{O})\text{R}^{11}$,

where

R^{11} , R^{12} and R^{13} are identical or different and are a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -fluoroalkyl group, a C_6 - C_{10} -aryl group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_8 - C_{40} -arylalkenyl group or a C_7 - C_{40} -alkylaryl group, or a pair of substituents R^{11} and R^{12} or R^{11} and R^{13} , in each case with the atoms connecting them, form a ring,

M^2 is silicon, germanium or tin,

R^8 and R^9 are identical or different and are as defined for R^{11} ,

m and n are identical or different and are zero, 1 or 2, m plus n being zero, 1 or 2,

the radicals R^{10} are the same or different and are as defined for R^{11} , R^{12} and R^{13} .]

[17. A compound as claimed in claim 16, wherein:

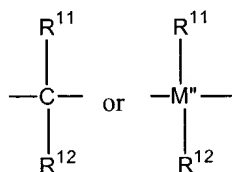
M^1 is titanium, zirconium, hafnium, vanadium, niobium, or tantalum,

R^1 and R^2 are identical or different and are methyl or halogen,

R^3 and R^4 are hydrogen,

R^5 and R^6 are identical or different and are methyl, ethyl, or trifluoromethyl,

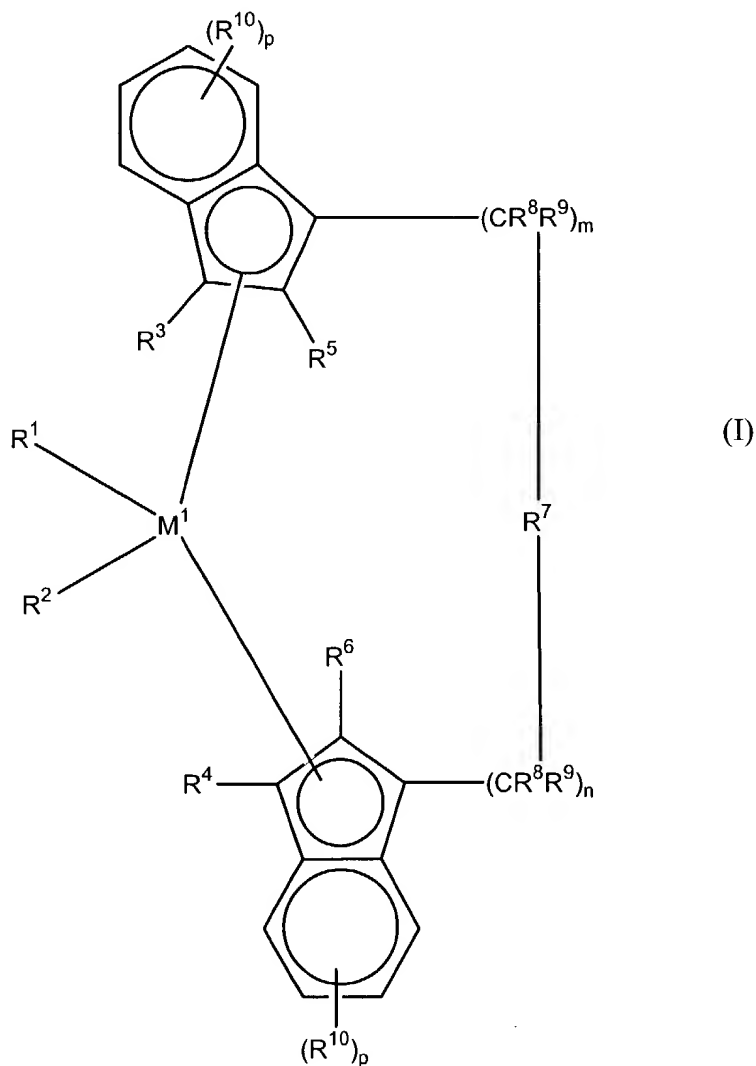
R^7 is a radical of the formula



where M'' is silicon or germanium, and

R^8 and R^9 are identical or different and are hydrogen or C_1 - C_{10} -alkyl.]

[18. A compound of the formula I



in which

M^1 is a metal from group IVb, Vb or VIb of the Periodic Table,

R^1 and R^2 are identical or different and are a hydrogen atom,

a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -alkoxy group, a C_6 - C_{10} -aryl group, a C_6 - C_{10} -aryloxy group, a C_2 - C_{10} -alkenyl group, a C_7 - C_{40} -arylalkyl group, a C_7 - C_{40} -alkylaryl group, a C_8 - C_{40} -arylalkenyl group or a halogen atom,

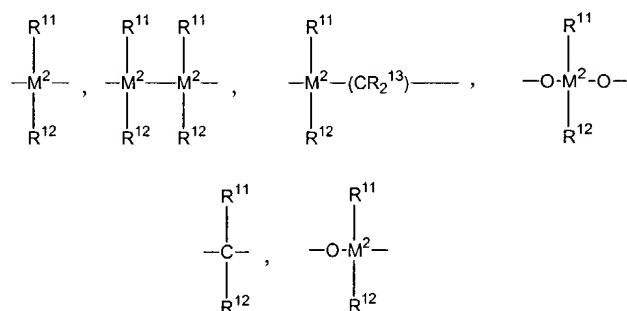
R^3 and R^4 are identical or different and are a hydrogen atom, a halogen atom, a C_1 - C_{10} -alkyl group, which is optionally halogenated, a C_6 - C_{10} -aryl group, an $-NR_2^{15}$, $-SR^{15}$,

$-\text{OSiR}_3^{15}$, SiR_3^{15} or PR_2^{15} radical in which R^{15} is a halogen atom, a $\text{C}_1\text{-C}_{10}$ -alkyl group or a $\text{C}_6\text{-C}_{10}$ -aryl group,

R^5 and R^6 are identical or different and are as defined for R^3 and R^4 , with the proviso that

R^5 and R^6 are not both hydrogen,

R^7 is



$=\text{BR}^{11}$, $=\text{AlR}^{11}$, $-\text{Ge}-$, $-\text{Sn}-$, $-\text{O}-$, $-\text{S}-$, $=\text{SO}$, $=\text{SO}_2$, $=\text{NR}^{11}$, $=\text{CO}$, $=\text{PR}^{11}$ or $=\text{P}(\text{O})\text{R}^{11}$,

where

R^{11} , R^{12} and R^{13} are identical or different and are a hydrogen atom, a halogen atom, a $\text{C}_1\text{-C}_{10}$ -alkyl group, a $\text{C}_1\text{-C}_{10}$ -fluoroalkyl group, a $\text{C}_6\text{-C}_{10}$ -aryl group, a $\text{C}_2\text{-C}_{10}$ -alkenyl group, a $\text{C}_7\text{-C}_{40}$ -arylalkyl group, a $\text{C}_8\text{-C}_{40}$ -arylalkenyl group or a $\text{C}_7\text{-C}_{40}$ -alkylaryl group, or a pair of substituents R^{11} and R^{12} or R^{11} and R^{13} , in each case with the atoms connecting them, form a ring,

M^2 is silicon, germanium or tin,

R^8 and R^9 are identical or different and are as defined for R^{11} ,

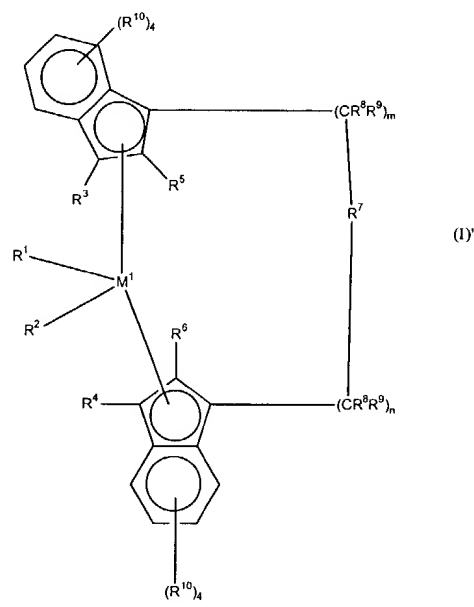
m and n are identical or different and are zero, 1 or 2, m plus n being zero, 1 or 2,

p is a number from 1 to 4, and

the radicals R^{10} are the same or different and are a halogen atom, a $\text{C}_1\text{-C}_{10}$ -alkyl group, a $\text{C}_1\text{-C}_{10}$ -fluoroalkyl group, a $\text{C}_6\text{-C}_{10}$ -aryl group, a $\text{C}_2\text{-C}_{10}$ -alkenyl group, a $\text{C}_7\text{-C}_{40}$ -arylalkyl

group, a C₈-C₄₀-arylalkenyl group or a C₇-C₄₀-alkylaryl group, or a pair of substituents R¹⁰, with the atoms connecting them, form a ring.]

19. A compound of the formula (I)'



in which

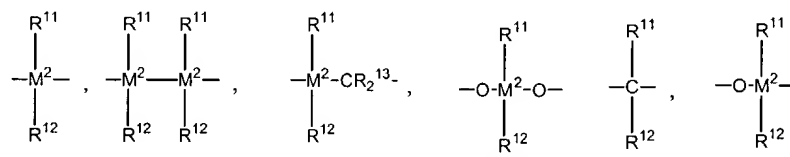
M¹ is a metal from group IVb, Vb or VIb of the Periodic Table,

R¹ and R² are identical or different and are a hydrogen atom, a C₁-C₁₀-alkyl group, a C₁-C₁₀-alkoxy group, a C₆-C₁₀-aryl group, a C₆-C₁₀-aryloxy group, a C₂-C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₇-C₄₀-alkylaryl group, a C₈-C₄₀-arylalkenyl group or a halogen atom,

R³ is a hydrogen atom, a halogen atom, a C₂-C₁₀-alkyl group, a C₁-C₁₀-alkyl group which is halogenated, a C₆-C₁₀-aryl group, an -NR₂¹⁵, -SR¹⁵, -OSiR₃¹⁵, -SiR₃¹⁵ or -PR₂¹⁵ radical in which R¹⁵ is a halogen atom, a C₁-C₁₀-alkyl group or a C₆-C₁₀-aryl group,

R⁴ is a hydrogen atom, a halogen atom, a C₁-C₁₀-alkyl group, which is optionally halogenated, a C₆-C₁₀-aryl group, an -NR₂¹⁵, -SR¹⁵, -OSiR₃¹⁵, -SiR₃¹⁵ or -PR₂¹⁵ radical in which R¹⁵ is a halogen atom, a C₁-C₁₀-alkyl group or a C₆-C₁₀-aryl group, R⁵ and R⁶ are identical or different and are as defined for R³ and R⁴, with the proviso that R⁵ and R⁶ are not hydrogen,

R⁷ is



=BR¹¹, =AlR¹¹, -Ge-, -Sn-, -O-, -S-, =SO, =SO₂, =NR¹¹, =CO, =PR¹¹ or =P(O)R¹¹,

where

R¹¹, R¹² and R¹³ are identical or different and are a hydrogen atom, a halogen atom, a C₁-C₁₀-alkyl group, a C₁-C₁₀-fluoroalkyl group, a C₆-C₁₀-aryl group, a C₂-C₁₀-alkenyl group, a C₇-C₄₀-arylalkyl group, a C₈-C₄₀-arylalkenyl group or a C₇-C₄₀-alkylaryl group, or a pair of substituents R¹¹ and R¹²-- or R¹¹ and R¹³, in each case with the atoms connecting them, form a ring,

M² is silicon, germanium or tin,

R⁸ and R⁹ are identical or different and are as defined for R¹¹

m and n are identical or different and are zero, 1 or 2, m plus n being zero, 1 or 2, the

radicals R¹⁰ are the same or different and are as defined for R¹¹, R¹² and R¹³.

20. A compound as claimed in claim 19, wherein:

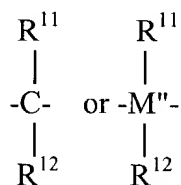
M¹ is titanium, zirconium, hafnium, vanadium, niobium, or tantalum,

R¹ and R² are identical or different and are methyl or halogen,

R³ and R⁴ are hydrogen,

R⁵ and R⁶ are identical or different and are methyl, ethyl, or trifluoromethyl,

R⁷ is a radical of the formula



where M'' is silicon or germanium, and

R⁸ and R⁹ are identical or different and are hydrogen or C₁-C₁₀-alkyl.

21. A catalyst composition comprising the combination comprising a compound of claim 19 and a cocatalyst.
22. A catalyst composition comprising the combination comprising a compound of claim 19 and an aluminoxane.
23. A process for polymerizing an olefin monomer, comprising the step of carrying out the polymerization in the presence of a catalyst composition of claim 21.
24. A process for polymerizing an olefin monomer, comprising the step of carrying out the polymerization in the presence of a catalyst composition of claim 22.
25. The compound as claimed in claim 1, wherein R³ is a hydrogen atom, a halogen atom, a C₁-C₁₀-alkyl group which is halogenated, a C₆-C₁₀-aryl group, an -NR₂¹⁵, -SR¹⁵, -OSiR₃¹⁵, -SiR₃¹⁵ or -PR₂¹⁵ radical in which R¹⁵ is a halogen atom, a C₁-C₁₀-alkyl group or a C₆-C₁₀-aryl group.

26. The compound as claimed in claim 1, wherein R^3 is a hydrogen atom, a halogen atom, a C_6 - C_{10} -aryl group, an $-NR_2^{15}$, $-SR^{15}$, $-OSiR_3^{15}$, $-SiR_3^{15}$ or $-PR_2^{15}$ radical in which R^{15} is a halogen atom, a C_1 - C_{10} -alkyl group or a C_6 - C_{10} -aryl group.